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10/589,542	04/17/2008	Nicolas Ibrahim	W51.12-0033	8471

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EXAMINER	
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2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,542	IBRAHIM ET AL.	
	Examiner	Art Unit	
	QUN SHEN	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *8/3/10* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is a First Action non Final on the merits. Claims 1-24, as preliminarily amended, are currently pending and have been considered below.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. France 04/01545, filed on February 16, 2004.

Claim Objections

Claim 1 is objected to because of the following informalities:

Claim 19 amended "said supplementray channel and said symmetric two-directional principal channel being implemented by a same base station ..." where **supplementray** should be **supplementary**.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: ***(See MPEP Ch. 2141)***

Determining the scope and contents of the prior art;
Ascertaining the differences between the prior art and the claims in issue;
Resolving the level of ordinary skill in the pertinent art; and
Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

3. Claims 2-11 and 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0017777 Chaudhuri et al. (hereinafter Chaudhuri), in view of US 6,940,827, Li et al. (hereinafter Li).

As to claim 19, Chaudhuri discloses a synchronization process for a supplementary channel associated with a symmetric two-directional principal channel, said supplementray channel and said symmetric two-directional principal channel being implemented by a same base station, said symmetric two-directional principal channel comprising a principal uplink channel and a principal downlink channel, particularly for low or medium speed transmission of signalling and control data and information (Chaudhuri: pars 0003-0005, CDMA, OFDM systems, par 0026, UMTS wireless phone system. It is well known in the art that in CDMA systems, such as IS-95 or cdma2000 technology, a series of channels, either downlink or uplink have been specified, such as pilot, sync, paging, access, forward and reverse (fundamental and supplemental) traffic channels, in which the control channels are often for low or medium speed transmission of signaling and control information),

Chaudhuri further discloses at least one supplementary channel, particularly for transmission of data at high speed, making use of a multicarrier technique for

distribution of data in the time/frequency space (Chaudhuri: par 0003, OFDM system), and with a sub-frame type structure (Chaudhuri: par 0031, 16 slots a frame (e.g. sub-frame structure)). Chaudhuri further discloses the frame offset between downlink channels (could be between principal and supplementary) and detects the time offset at the mobile station for channel synchronization (Chaudhuri: Fig 5, pars 0038, 0041). Including detecting a determined time (to) on the principal downlink channel (Figs 2-3); obtaining the beginning of a sub-frame of the supplementary channel, by offsetting the determined time (to) detected in a) by a time interval with a determined duration not equal to zero (delta t) (Figs 2-3, 5-8).

Chaudhuri does not expressly disclose the supplementary is for downlink only.

Li teaches a cdma and OFDM system where the OFDM communication is for downlink communication only (Li: Fig 11, col 10, lines 36-53). The OFDM downlink channel frames possess sub-frame structure (Li: Fig 9, PNs, OFDM symbols) and with time offset (Li: col 6, lines 16-35, guard time interval at the beginning of the frame of each symbol, such guard time can be offset with the cdma channels).

Therefore, consider both Chaudhuri and LI's teachings as a whole, it would have been obvious to one of skill in the art at the time of invention to modify Chaudhuri's system of principal and supplemental communication system and synchronization methods with frame offset by incorporating Li's teachings on downlink OFDM channel and the sub-frame structure and time offset in order to provide a hybrid CDMA-OFDM wireless communication system and synchronization of different channels at mobile station with the frame offset between channels.

As to claim 19, claim 19 is a method claim that recites limitations encompassed and necessitated by claims 1 and 23. Rejections of claims 1 and 23 are therefore incorporated herein (see analysis and rejections of claims 1 and 23).

As to claim 2, Chaudhuri as modified discloses the synchronization process according to claim 19, the structure of the principal channel being organized in frames, wherein the determined time (t.sub.0) on the principal channel is a beginning of a frame of the principal channel (Chaudhuri: pars 0003, cdma, in which sync frames (26.67 ms) traffic frames (20 ms), or superframes (80 ms) are specified in IS-95 standard, also par 0031, UMTS standards, 10 ms frames. The frame boundary being the determined time on the principal channel).

As to claim 3, Chaudhuri as modified discloses the synchronization process according to claim 2, wherein the beginning of each frame of the principal channel forms a respective one of the determined times (t.sub.0) (see analysis of claim 2, frame boundary).

As to claim 4, Chaudhuri as modified discloses the synchronization process according to claim 2, wherein the beginning of only some frame(s) of the principal channel called synchronization frames forms a respective one of the determined times (t.sub.0) (see analysis of claim 1, synch frame, for example).

As to claim 5, Chaudhuri as modified discloses the synchronization process according to claim 4, wherein the principal channel or the supplementary channel transmit(s) identification information of at least one synchronization frame (Chaudhuri: sync channel, see claim 1, Li: Figs 8-9).

As to claim 6, Chaudhuri as modified discloses the synchronization process according to claim 19, the principal channel having a structure organized in frames each including a plurality of slots, wherein the determined time (t.sub.0) on the principal channel is a beginning of a slot of the principal channel (Chaudhuri: par 0031, 16 slots in one 10 ms frame).

As to claim 7, Chaudhuri as modified discloses the synchronization process according to claim 6, wherein the beginning of only some slot(s) of the principal channel called the synchronization slots, forms a respective one of the determined times (t.sub.0) (Chaudhuri: par 0033).

As to claim 8, Chaudhuri as modified discloses the synchronization process according to claim 7, wherein the principal channel and/or the supplementary channel transmit(s) identification information of at least one synchronization slot (Chaudhuri: par 0033, SCH transmits primary and secondary synchronization code for mobile device to acquire slot synchronization).

As to claim 9, Chaudhuri as modified discloses the synchronization process according to claim 1, the principal channel having a structure organized in frames each comprising a plurality of slots, each slot comprising a plurality of signal units (chips) (Chaudhuri: par 0031, 16 slots per frame, 0038, chips), wherein the determined duration of said time interval (.DELTA.t) is equal to k times the duration of a signal unit, where k is an integer number (Chaudhuri: par 0038, the frame offset may be anywhere from zero to 38144 chips, measured in increments of 256 (e.g. k=256) chips).

As to claim 10, Chaudhuri as modified discloses the synchronization process according to claim 9, wherein k is equal to 256 (Chaudhuri: par 0038, the frame offset, measured in increments of 256 chips, also see claim 9).

As to claim 11, Chaudhuri as modified discloses the synchronization process according to claim 19, wherein the principal channel or the supplementary channel transmit(s) information about said duration of the time interval (.DELTA.t) (Li: Fig 9, PNs).

As to claim 14, Chaudhuri as modified discloses the synchronization process according to claim 19, wherein the principal channel uses a spectrum spreading access (CDMA) technique (see analysis of claim 1).

As to claim 15, Chaudhuri as modified discloses the synchronization process according

to claim 19, wherein said supplementary channel uses a multicarrier technique based on an OFDM modulation (see analysis of claim 1) or an IOTA modulation.

As to claim 16, Chaudhuri as modified discloses the synchronization process according to claim 19, wherein the principal channel firstly transmits a notification prompting said terminal to perform said synchronization of the supplementary channel at sub-frame level, to swap the terminal from the principal channel to the supplementary channel (Chaudhuri: pars 0012, 0043, 0048, implied as part of hand over process between principal and supplementary channels, here both channels utilize different technologies, see Li: Fig 11).

As to claim 17, Chaudhuri as modified discloses the synchronization process according to claim 16, wherein said notification comprises information about said duration of the time interval (.DELTA.t) or said determined time (t.sub.0) on the principal channel (Chaudhuri: Figs 5, 8, par 0014).

As to claim 18, Chaudhuri as modified discloses the synchronization process according to claim 16, wherein said notification is transmitted to a paging channel included in said principal channel (see analysis of claim 19).

As to claim 20, Chaudhuri as modified discloses the synchronization process according to claim 19, wherein said duration of the time interval (.DELTA.t) or said determined

time (t.sub.0) on the principal channel is (are) fixed and known to a terminal at which said synchronization process is performed (Chaudhuri: pars 0049-0050, frame offset is relatively fixed).

As to claim 21, Chaudhuri as modified discloses the synchronization process according to claim 19, wherein said duration of the time interval (.DELTA.t) or said determined time (t.sub.0) on the principal downlink channel is (are) variable, (Chaudhuri: pars 0049-0050, variable between updates) and the principal downlink channel or the supplementary channel transmit(s) information about said duration of the time interval (.DELTA.t) or said time (t.sub.0) (Chaudhuri: pars 0036, 0075, Li: Figs 8,9, PN offset indicating the time intemval).

As to claim 22, Chaudhuri as modified discloses the synchronization process according to claim 19, wherein it includes a preliminary step in which a notification is transmitted through the principal channel prompting a terminal to perform said step of synchronizing at sub-frame level of the supplementary channel, so as to swap the terminal from the principal channel to the supplementary channel (see analysis of claim 16).

As to claim 23, Chaudhuri as modified discloses a terminal of a cellular radiotelephony system, said terminal comprising:
a transmitter for transmitting a principal uplink channel (Li: Fig 11: 1101), a receiver for receiving a principal downlink channel (Li: Fig 11: 1102), said principal uplink and said

principal downlink forming a symmetric two-directional principal channel particularly for low or medium speed transmission of signalling and control data and information (Li: Fig 11, also see analysis of claim 1), and a receiver for receiving at least one supplementary channel, said supplementary channel being assigned to the downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space, and with a sub-frame type structure (Li: Fig 11: 1103, also see claim 1), and a synchronizer, which synchronizes the supplementary channel at sub-frame level (Chaudhuri: pars 0014, 0038 , Li: col 9, lines 35-55), wherein the synchronizer detects a determined time (t.sub.0) on the principal downlink channel: and obtains the beginning of a sub-frame of the supplementary channel, by offsetting the detected time (t.sub.0) by a time interval with a determined duration not equal to zero (.DELTA.t) (with Chaudhuri and Li's combined teachings, such steps would have been implied if not inherent, see Chaudhuri: 0038, 0041, Li: col 9, lines 35-55).

As to claim 24, Chaudhuri as modified discloses a base station of a cellular radiotelephony system (Li: Fig 11), including: a receiver, which receives a principal uplink channel (Li: Fig 11: 1108, a CDMA receiver, also see analysis of claim 1), a transmitter, which transmits a principal downlink channel, said principal uplink channel and said principal downlink channel forming a symmetric two-directional principal channel particularly for low or medium speed transmission of signalling and control data and information (Li: Fig 11: 1108, a CDMA transmitter for downlink principal channel

transmission, also see claim 19), a transmitter, which transmits at least one supplementary channel, said supplementary channel being assigned to a downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time/frequency space (Li: Fig 11: 1110, OFDM transmitter for transmitting higher speed data, also see claim 1), and with a sub-frame type structure (Li: Fig 9, multiple PNs, and symbols), means of offsetting the beginning of at least one sub-frame of the supplementary channel, by a time interval with a determined duration not equal to zero (.DELTA.t) from a determined time (t.sub.0) on the principal downlink channel (see analysis of claim 19), so as to enable synchronization of the supplementary channel at sub-frame level, in a terminal, by detection of said determined time (t.sub.0), and adding said time interval (.DELTA.t) (see analysis of claims 1, 23).

4. **Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri, in view of Li, and further in view of US 2002/0187749 A1, Beasley et al. (hereinafter Beasley).**

As to claim 12, Chaudhuri as modified discloses the synchronization process according to claim 19 and detecting the beginning of a sub-frame, so as to enable synchronization of the supplementary channel at frame level by detecting the beginning of the next frame as a function of said synchronization at sub-frame level and said information (see claim 19, synchronized at frame boundary, or slot boundary), but does not expressly disclose wherein the principal channel or the supplementary channel transmit(s)

information about a rank within a frame of the structure of the supplementary channel, or the rank of said sub-frame.

Beasley, however, teaches establishing the rank between base station units or provide a sync signal to mobile units, mobile units becoming synchronized with a network and providing such synchronization information to base station and mobile synchronization process based on rank or priority (Beasley: par 0043). Consider Chaudhuri as modified and Beasley's teachings together, it would have been obvious to one of skill in the art at the time of invention to further modify Chaudhuri as modified's method by incorporating Beasley's teachings on rank in providing mobile synchronization such that the mobile synchronization would be done according to the priority.

5. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhuri, in view of Li, and further in view of US 2004/0181569 A1, Attar et al. (hereinafter Attar).

As to claim 13, Chaudhuri as modified discloses the synchronization process according to claim 12 but does not expressly disclose wherein the principal channel or the supplementary channel also transmit(s) information about a mode of transmitting sub-frames on the supplementary channel, said synchronization at frame level of the supplementary channel also depending on said information about the transmission mode. Attar, however, teaches various mode of operation in data transmission (Attar: pars 0026-0027, different multiplexing, par, 0046-0047, variable rate mode, 0108, with different modulation formats in different slots (OFDM, CDM, etc. depending on data

rate). Consider Chaudhuri as modified and Attar's teachings together, it would have been obvious to one of skill in the art at the time of invention to further modify Chaudhuri as modified's method by incorporating Beasley's teachings on providing mode of transmission within different portion of the frame based on transmission rate, modulation scheme etc. in order to provide mode information and synchronize mobile station accordingly.

Response to Arguments

Following are responses to applicant's arguments filed on August 3, 2010.

Applicant's argument regarding double patenting is persuasive. Provisional non-statutory double patenting rejection is withdrawn.

Applicant's amendment to overcome USC 35 101 rejection is accepted and rejection under USC 35 101 is withdrawn.

Applicant's arguments regarding merit rejections have been considered. However, they are not persuasive.

Applicant argues that Chaudhuri does not disclose the fundamental and supplementary channels being implemented in the same base station because Chaudhuri teaches the channels during handover operation and therefore amended claims with fundamental and supplementary channels being implemented in the same base station overcomes the prior art. Examiner would like to point out that Chaudhuri discloses synchronization process between different physical channels including synchronization between DPCH and P-CCPCH (i.e. fundamental and supplementary channels). Such handover

operation may occur between different base stations or within the same base station (soft handover between or among different sectors of the same base station, see par 0009). Furthermore, as ordinary skill in the art would understand, the same channels exist in serving, candidate, or neighboring base stations in order to maintain interoperability defined in the wireless communication standards, such as UMTS system under 3GPP standards, as discussed in the application as well as in Chaudhuri's reference. Therefore, even though in Chaudhuri 's example, a supplementary channel from neighboring base station is used to estimate and synchronize the frame timing at the mobile terminal, it does not conclude the same base station does not have the same channel, or there would be no hand over operation. In addition, applicant recites two directional fundamental channels and forward direction supplementary channel transceiver in the same base station (in claim 24). However, it does not present the mobile terminal from synchronizing the channels in sub-frame level from either the same base station or either serving or target base station.

As to applicant's argument that Chaudhuri does not disclose non-zero offset of at least one sub-frame between fundamental and supplemental channels, examiner would like to point out Chaudhuri does indicate that the time offset between the two channels can be anywhere zero to 38144 chips (see pars 0037-0038). Therefore, a time offset would fall in this range of frame offset and could be adjusted to be non-zero.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUN SHEN whose telephone number is (571)270-7927. The examiner can normally be reached on 9:30 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinsong Hu can be reached on 571-272-3965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/QUN SHEN/
Examiner, Art Unit 2617